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**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHODS FOR TREATING INTERLEUKIN-6 RELATED DISEASES

(57) Abstract: A pharmaceutical composition for the treatment of interleukin-6 (IL-6) related diseases, comprising an interleukin-6 antagonist (IL-6 antagonist) and immunosuppressants. The IL-6 antagonist is preferably an antibody to an interleukin-6 receptor (IL-6R).



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# INTERNATIONAL SEARCH REPORT

International Application No

PCT/JP2004/006211

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 A61K39/505 A61K39/395

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, EMBASE, BIOSIS, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No. .
X	US 5 210 075 A (LOBL THOMAS J ET AL) 11 May 1993 (1993-05-11)  column 23	1-5, 15, 28-32, 42, 55-59, 68
X	CHOY E H S ET AL: "Therapeutic benefit of blocking interleukin-6 activity with an anti-interleukin-6 receptor monoclonal antibody in rheumatoid arthritis: a randomized, double-blind, placebo-controlled, dose-escalation trial." ARTHRITIS AND RHEUMATISM. DEC 2002, vol. 46, no. 12, December 2002 (2002-12), pages 3143-3150, XP002298379 ISSN: 0004-3591 page 3143	1-10, 13, 15-21, 26-37, 40, 42-48, 53-63, 66, 68-74, 79, 80
	-/-	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents:

\*A\* document defining the general state of the art which is not considered to be of particular relevance

\*E\* earlier document but published on or after the international filing date

\*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

\*O\* document referring to an oral disclosure, use, exhibition or other means

\*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\* & \* document member of the same patent family

Date of the actual completion of the international search

8 October 2004

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22/10/2004

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>NISHIMOTO ET AL: "Safety and efficacy of repetitive treatment with humanized anti-interleukin-6 receptor antibody (MRA) in rheumatoid arthritis." ARTHRITIS AND RHEUMATISM, vol. 44, no. S9-191, 2002, pages S84-S84, XP002298380 abstract</p>	<p>4-10, 13, 15, 31-37, 40, 42, 58-63, 66, 68</p>
X	<p>EP 1 074 268 A (KISHIMOTO TADAMITSU ; CHUGAI PHARMACEUTICAL CO LTD (JP)) 7 February 2001 (2001-02-07) paragraph '0017! paragraph '0034!</p>	<p>4-15, 31-42, 55-68</p>
X	<p>WO 97/10338 A (CHIRON CORP) 20 March 1997 (1997-03-20)</p> <p>page 22</p>	<p>1-5, 28-32, 55-59</p>
X	<p>WO 99/64070 A (OPHIDIAN PHARM INC) 16 December 1999 (1999-12-16)</p> <p>page 6, line 11</p>	<p>1-5, 28-32, 55-59</p>
P, X	<p>NISHIMOTO N ET AL: "Toxicity, pharmacokinetics, and dose-finding study of repetitive treatment with the humanized anti-interleukin 6 receptor antibody MRA in rheumatoid arthritis. Phase I/II clinical study" JOURNAL OF RHEUMATOLOGY 01 JUL 2003 CANADA, vol. 30, no. 7, 1 July 2003 (2003-07-01), pages 1426-1435, XP009037243 ISSN: 0315-162X page 1427</p>	<p>1-5, 28-32, 55-59</p>
P, X	<p>MAINI &amp; CHARISMA STUDY GROUP: "A double blind, randomised, parallel group, controlled, dose ranging study of the safety, tolerability, pharmacokinetics and efficacy of repeat doses of MRA given alone or in combination with methotrexate in patients with rheumatoid arthritis." ABSTRACT OF PRESENTATION AT EULAR, 2003, LISBON, 19 June 2003 (2003-06-19), page OP0002, XP002298382 Retrieved from the Internet: URL: <a href="http://mcic3.textor.com/cgi-bin/mc/printabs.pl?APP=eular2003SCIE=abstract&amp;TEMPLATE=&amp;keyf=1607&amp;showHide=show&amp;client=&gt;">http://mcic3.textor.com/cgi-bin/mc/printabs.pl?APP=eular2003SCIE=abstract&amp;TEMPLATE=&amp;keyf=1607&amp;showHide=show&amp;client=&gt;</a> 'retrieved on 2004-09-28! abstract</p>	<p>1-80</p>

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# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/JP2004/006211

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	WO 2004/039826 A (CENTOCOR INC) 13 May 2004 (2004-05-13)  page 44	1-5, 15, 22, 28-32, 42, 49, 55-59, 68, 75
P, X	----- DATABASE BIOSIS 'Online! BIOSCIENCES INFORMATION SERVICE, PHILADELPHIA, PA, US; 16 November 2003 (2003-11-16), NISHIMOTO NORIHIRO ET AL: "The long-term safety and efficacy of humanized anti-interleukin-6 receptor monoclonal antibody, MRA in multicentric Castleman's disease." XP002298386 Database accession no. PREV200400147710 abstract	1-5, 16-21, 28-32, 43-48, 55-59, 69-74
P, X	& BLOOD, vol. 102, no. 11, 16 November 2003 (2003-11-16), pages 646a-647a, 45TH ANNUAL MEETING OF THE AMERICAN SOCIETY OF HEMATOLOGY; SAN DIEGO, CA, USA; DECEMBER 06-09, 2003 ISSN: 0006-4971 abstract	1-5, 16-21, 28-32, 43-48, 55-59, 69-74
P, X	----- ITO HIROAKI ET AL: "A pilot randomized trial of a human anti-interleukin-6 receptor monoclonal antibody in active Crohn's disease" GASTROENTEROLOGY, vol. 126, no. 4, April 2004 (2004-04), pages 989-996, XP002298383 ISSN: 0016-5085 page 990; table 1	1-5, 16-21, 28-32, 43-48, 55-59, 69-74
A	----- MAINI RAVINDER N ET AL: "Therapeutic efficacy of multiple intravenous infusions of anti-tumor necrosis factor alpha monoclonal antibody combined with low-dose weekly methotrexate in rheumatoid arthritis" ARTHRITIS AND RHEUMATISM, vol. 41, no. 9, September 1998 (1998-09), pages 1552-1563, XP002298384 ISSN: 0004-3591 page 1559  ----- -/--	1-80

## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/JP2004/006211

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>BAERT FILIP ET AL: "Influence of immunogenicity on the long-term efficacy of infliximab in Crohn's disease." NEW ENGLAND JOURNAL OF MEDICINE, vol. 348, no. 7, 13 February 2003 (2003-02-13), pages 601-608, XP009037271 ISSN: 0028-4793 page 607</p>	1-80
A	<p>WAGNER ET AL: "Consequences of immunogenicity to the therapeutic monoclonal antibodies ReoPro(TM) and Remicade (TM)" IMMUNOGENICITY OF THERAPEUTIC BIOLOGICAL PRODUCTS S. KARGER PUBLISHERS INC., 79 FIFTH AVENUE, NEW YORK, NY, 10003, USA; S. KARGER AG, CH-4009, P. O. BOX, BASEL, SWITZERLAND SERIES : DEVELOPMENTS IN BIOLOGICALS (ISSN 1424-6074 (ISSN PRINT)), 2003, pages 37-53, XP001183819 SYMPOSIUM ON IMMUNOGENICITY OF THERAPEUTIC BIOLOGICAL PRODUCTS; BETHESDA, MD, USA; OCTOBER 31-NOVEMBER 02, 2001 ISSN: 3-8055-7575-0 the whole document</p>	1-80
A	<p>US 6 270 766 B1 (FELDMAN MARC ET AL) 7 August 2001 (2001-08-07) column 6</p>	1-80

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/JP2004/006211

## Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 55-80  
because they relate to subject matter not required to be searched by this Authority, namely:  
Although claims 55-80 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/JP2004/006211

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